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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,063	06/22/2005	Peter Geigenberger	13311-00008-US	4909

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EXAMINER

PAGE, BRENT T

ART UNIT	PAPER NUMBER
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1638

MAIL DATE	DELIVERY MODE
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03/31/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/540,063	Applicant(s) GEIGENBERGER ET AL.	
	Examiner BRENT PAGE	Art Unit 1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 45 and 47-62 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 45 and 47-62 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The Reply filed by Applicants on 12/15/2008 is hereby acknowledged. The entry of new Claims 61 and 62 is hereby acknowledged. Claims 45, and 47-62 are pending and examined herein on the merits. Any claim objections or rejections of record not specifically addressed or repeated below are considered hereby withdrawn in response to Applicant's arguments when taken together with the claim amendments.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 61 and 62 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Both claims recite at in line 2 at the very end of the claim "results in an increase in starch content in the transformed plant is increase". It is unclear what limitation is intended with the term "is increase". The term appears to be an error and because a reasonable interpretation of what the limitation might mean is not possible, the term is given no weight in examining the claim. For examination purposes both claims will be read as "results in an increase in starch content in the transformed plant." Applicant must either clarify the intended limitation or delete the phrase "is increase" to obviate this rejection. New Matter should be avoided.

Art Unit: 1638

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 61 and 62 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims both recite “results in an increase in starch content in the transformed plant is increase”. The specification lacks support for this claim language and the claims are therefore directed to New Matter. All New Matter must be deleted from the claims.

Claim Rejections - 35 USC § 103

Claims 45 and 47-60 remain rejected and claims 61-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harper et al (PGPUB-20020160378) in view of Sowa et al (1998 PNAS 95:10317-10321) and further, in view of Nykiforuk (US patent 6552250). The claims remain rejected for the reasons of record in the office actions mailed out 09/08/2006, 10/19/2007 and 09/16/2008 as well as the reasons set forth

Art Unit: 1638

below. New claims 61-62 are rejected as applied to the previous claims as well as the reasons set forth below.

Applicant's arguments filed 12/15/2008 have been fully considered but they are not persuasive.

Applicants urge that Harper et al does not teach or suggest a method for the production of starch and/or oil comprising growing a transformed plant that overexpresses at least one hemoglobin gene because Harper et al do not teach that overexpressing hemoglobin would increase production of starch and/or oil (See page 5 of response 3rd paragraph).

This is not persuasive because Harper et al teach the overexpression of at least one hemoglobin gene in a plant, which meets the limitations of the instant claims. It would naturally follow that starch and/or oil would be increased because all of the method steps are taught.

Applicant's urge that Sowa et al do not teach transgenic plants but rather cell lines and therefore does not teach a method for the production of starch and/or oil (see page 5 of response paragraph 4) and furthermore urge that Sowa et al actually teach away from the invention because they teach that transformed cells did not differ from wild type cells with respect to culture growth rate (see page 6 of response).

This is not persuasive because Sowa et al establish 1) that transformation of plants with heterologous hemoglobin genes was taught in the prior art and 2) that it was of interest in the prior art to establish the role of hemoglobins. Sowa et al do not teach away from the current invention simply because the culture growth rate of cells was not

Art Unit: 1638

appreciably affected. On the contrary, the discussion shows that the authors believed that hemoglobin genes are responsible for increasing substrate phosphorylation (see page 10320 in particular). The production of starch is previously known to rely upon substrate phosphorylation, and therefore an expectation of an increase in phosphorylation would be reasonably expected to result in an increase in processes that utilize such phosphorylation, such as starch production.

Applicants urge that Nykiforuk does not teach or suggest a transformed plant overexpressing at least one hemoglobin (see page 6 of response).

This is not persuasive because Applicants appear to be arguing the references individually rather than as a whole. As mentioned above, Harper et al already teach a transformed plant overexpressing SEQ ID NO:5, and Sowa et al teach that one would reasonably expect success in transforming hemoglobins across plant species and that the function of the gene at least in part increases substrate phosphorylation, so one would have been motivated to transform plants with the hemoglobin gene. Nykiforuk establishes that it was desirable to increase oil content in the seeds of plants and so one would have been motivated to practice the method of the instant invention. Contrary to Applicants' assertions, Sowa et al does not teach away from the transformation of plants with at least one hemoglobin gene to increase oil or starch content. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

No claims are free of the prior art.

No claims are allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRENT PAGE whose telephone number is (571)272-5914. The examiner can normally be reached on Monday-Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571)-272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1638

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Brent T Page

/Anne Marie Grunberg/
Supervisory Patent Examiner, Art Unit 1638